Amendments to the Claims

This listing will replace all prior versions and listings of claims in the application.

Listing of Claims:

1.   (withdrawn) A method of determining factors for insulin therapy comprising the steps of:

storing at least one data set in a memory device, the data set comprising blood glucose readings for, respectively, substantially the beginning of and substantially the end of a selected period of time, a value corresponding to the patient's food intake for the selected period, and the amount of insulin administered to the patient during the selected period;

providing an insulin sensitivity factor for the patient wherein the initial insulin sensitivity factor can be one of an estimated insulin sensitivity factor, the most recently known insulin sensitivity factor, and an initial insulin sensitivity factor; and

determining a carbohydrate to insulin ratio for each data set using the insulin sensitivity factor.

2.   (withdrawn) A method as claimed in claim 1, further comprising the step of determining a weighted average for a carbohydrate to insulin ratio for a selected time period using the carbohydrate to insulin ratio for each of respective data sets.

3.   (withdrawn) A method as claimed in claim 1, further comprising the step of determining an insulin sensitivity factor for each data set using a carbohydrate to insulin ratio for the patient wherein the carbohydrate to insulin ratio can be an estimated carbohydrate to insulin ratio, the most recently known carbohydrate to insulin ratio, an initial carbohydrate to insulin ratio, the carbohydrate to insulin ratio determined for a data set, and a weighted average for a carbohydrate to insulin ratio for a selected time period using the carbohydrate to insulin ratio for each of respective data sets.

4.   (withdrawn) A method as claimed in claim 3, further comprising the step of determining a weighted average for an insulin sensitivity factor for a selected time period using the insulin sensitivity factor for each of respective data sets.

5.   (currently amended) An apparatus for determining factors for insulin therapy comprising:

        a memory device [[for]] storing at least one data set, the data set comprising blood glucose readings for, respectively, substantially the beginning of and substantially the end of a selected period of time, a value corresponding to the patient's food intake for the selected period, and the amount of insulin administered to the patient during the selected period; and

        a processing device ~~programmable~~programmed to use an insulin sensitivity factor for the patient wherein the initial insulin sensitivity factor can be one of an estimated insulin sensitivity factor, the most recently known insulin sensitivity factor, and an initial insulin sensitivity factor, and to determine a carbohydrate to insulin ratio for [[each]]the at least one data set using the insulin sensitivity factor.

6.   (currently amended) An apparatus as claimed in claim 5, wherein said processing device is ~~programmable~~programmed to determine a weighted average for a carbohydrate to insulin ratio for a selected time period using the carbohydrate to insulin ratio for each of respective data sets.

7.   (currently amended) An apparatus as claimed in claim 5, wherein said processing device is ~~programmable~~programmed to determine an insulin sensitivity factor for each data set using a carbohydrate to insulin ratio for the patient wherein the carbohydrate to insulin ratio can be an estimated carbohydrate to insulin ratio, the most recently known carbohydrate to insulin ratio, an initial carbohydrate to insulin ratio, the carbohydrate to insulin ratio determined for a data set, and a weighted average for a carbohydrate to insulin ratio for a selected time period using the carbohydrate to insulin ratio for each of respective data sets.

8.   (currently amended) An apparatus as claimed in claim 7, wherein said processing device
is ~~programmable~~programmed to determine a weighted average for an insulin sensitivity factor
for a selected time period using the insulin sensitivity factor for each of respective data sets.

9.   (original) An apparatus as claimed in claim 5, wherein said processing device is selected
from the group consisting of a personal computer, a personal data assistant, a hand held
computing device, a blood glucose monitor, an infusion pump, a medication delivery pen, a
meter, a calculator, a therapeutic device used for managing a patient's blood glucose levels, a
diagnostic device used for managing a patient's blood glucose levels, and an informational
device used for managing a patient's blood glucose levels.

10.   (withdrawn) A method of determining factors for insulin therapy comprising the steps
of:

        storing at least one data set in a memory device, the data set comprising blood glucose
readings for, respectively, substantially the beginning of and substantially the end of a selected
period of time, a value corresponding to the patient's food intake for the selected period, and the
amount of insulin administered to the patient during the selected period;

        calculating a delta blood glucose level corresponding to the difference between the blood
glucose readings taken, respectively, at substantially the beginning of and substantially the end
of the selected period;

        determining a correct insulin amount using the delta blood glucose level, an insulin
sensitivity factor, and the amount of insulin administered to the patient during the selected
period; and

        determining a plurality of daily carbohydrate to insulin ratios corresponding to respective
ones of a plurality of days, the daily carbohydrate to insulin ratios each being based on the
correct insulin amount and the value corresponding to the patient's food intake for the selected
period from the data set of the corresponding one of the plurality of days.

11.   (withdrawn) A method as claimed in claim 10, further comprising the step of
determining a carbohydrate to insulin ratio for the selected period from an average of the daily
carbohydrate to insulin ratios.

12.   (withdrawn) A method as claimed in claim 11, wherein the step of determining a
carbohydrate to insulin ratio for the selected period comprises the step of calculating a weighted
average of the plurality of daily carbohydrate to insulin ratios.

13.   (withdrawn) A method as claimed in claim 10, further comprising the step of generating
an initial estimate of the insulin sensitivity factor using at least one number selected from the
range of numbers equal to or between 1500 and 1800, and dividing the at least one number by
the daily insulin dose.

14.   (withdrawn) A method as claimed in claim 10, further comprising the steps of:
        determining the amount of insulin not needed for carbohydrates consumed on a given
day; and
        determining an estimate of the insulin sensitivity factor for the given day using the delta
blood glucose divided by the amount of insulin not needed for the given day.

15.   (withdrawn) A method as claimed in claim 14, wherein the determining step for
determining the amount of insulin not needed for carbohydrates consumed on a given day
comprises the steps of:
        determining a carbohydrate to insulin ratio for the selected period from an average of the
daily carbohydrate to insulin ratios;
        dividing the value corresponding to the patient's food intake by the carbohydrate to
insulin ratio for the selected period, the value for the patient's food intake being the value for the
selected period obtained from the data set of one of the plurality of days corresponding to the
given day; and

6

subtracting the result of the dividing step from the an estimate of the insulin sensitivity

factor for the given day.

16.   (withdrawn) A method as claimed in claim 14, further comprising the step of

determining the insulin sensitivity factor for the selected period from an average of the insulin

sensitivity factor for each of a plurality of days.

17.   (withdrawn) A method as claimed in claim 16, wherein the step of determining an

insulin sensitivity factor for the selected period comprises the step of calculating a weighted

average of the insulin sensitivity factor for each of a plurality of days.

18.   (withdrawn) A method as claimed in claim 10, further comprising the step of receiving

input signals from a user input device providing user input information selected from the group

consisting of the amount of food eaten in the selected period in grams, bread exchanges for food

eaten in the selected period, and a carbohydrate to insulin ratio supplied by a health care

provider.

19.   (withdrawn) A method as claimed in claim 10, further comprising the step of performing

a conversion operation to convert the user input information to a different unit of measurement,

the conversion operation selected from the group consisting of bread exchanges to grams, grams

to bread exchanges, units insulin to milligrams, and milligrams to units insulin.

20.   (currently amended) An apparatus for determining factors for insulin therapy

comprising:

a memory device [[for]] storing at least one data set in a memory device, the data set

comprising blood glucose readings for, respectively, substantially the beginning of and

substantially the end of a selected period of time, a value corresponding to the patient's food

intake for the selected period, and the amount of insulin administered to the patient during the

selected period; and

a processing device connected to the memory device and ~~being~~
~~programmable~~programmed to calculate a delta blood glucose level corresponding to the
difference between the blood glucose readings taken, respectively, at substantially the beginning
of and substantially the end of the selected period, to determine a correct insulin amount using
the delta blood glucose level, an insulin sensitivity factor, and the amount of insulin administered
to the patient during the selected period, and to determine a plurality of daily carbohydrate to
insulin ratios corresponding to respective ones of a plurality of days, the daily carbohydrate to
insulin ratios each being based on the correct insulin amount and the value corresponding to the
patient's food intake for the selected period from the data set of the corresponding one of the
plurality of days.

21.   (currently amended) An apparatus as claimed in claim 20, wherein the processing device
is ~~programmable~~programmed to determine a carbohydrate to insulin ratio for the selected period
from an average of the daily carbohydrate to insulin ratios.

22.   (currently amended) An apparatus as claimed in claim 20, wherein the processing device
is ~~programmable~~programmed to determine a carbohydrate to insulin ratio for the selected period
by calculating a weighted average of the plurality of daily carbohydrate to insulin ratios.

23.   (currently amended) An apparatus as claimed in claim 20, wherein the processing device
is ~~programmable~~programmed to generate an initial estimate of the insulin sensitivity factor using
at least one number selected from the range of numbers equal to or between 1500 and 1800, and
dividing the at least one number by the daily insulin dose.

24.   (currently amended) An apparatus as claimed in claim 20, wherein the processing device
is further ~~programmable~~programmed to determine the amount of insulin not needed for
carbohydrates consumed on a given day, and an estimate of the insulin sensitivity factor for the
given day using the delta blood glucose divided by the amount of insulin not needed for the
given day.

25.   (currently amended) An apparatus as claimed in claim 20, wherein the processing device

is ~~programmable~~programmed to determine the amount of insulin not needed for carbohydrates

consumed on a given day by determining a carbohydrate to insulin ratio for the selected period

from an average of the daily carbohydrate to insulin ratios, dividing the value corresponding to

the patient's food intake by the carbohydrate to insulin ratio for the selected period, the value for

the patient's food intake being the value for the selected period obtained from the data set of one

of the plurality of days corresponding to the given day, and subtracting the result of the dividing

step from the an estimate of the insulin sensitivity factor for the given day.

26.   (currently amended) An apparatus as claimed in claim 20, wherein the processing device

is ~~programmable~~programmed to determine the insulin sensitivity factor for the selected period

from an average of the insulin sensitivity factor for each of a plurality of days.

27.   (currently amended) An apparatus as claimed in claim 20, wherein the processing device

is ~~programmable~~programmed to determine an insulin sensitivity factor for the selected period by

calculating a weighted average of the insulin sensitivity factor for each of a plurality of days.

28.   (withdrawn) A method of determining factors used for insulin therapy comprising the

steps of:

        storing at least one data set in a memory device, the data set comprising blood glucose

readings for, respectively, substantially the beginning of and substantially the end of a selected

period of time, a value corresponding to the patient's food intake for the selected period, and the

amount of insulin administered to the patient during the selected period;

        calculating a delta blood glucose level corresponding to the difference between the blood

glucose readings taken, respectively, at substantially the beginning of and substantially the end

of the selected period; and

        determining a correct insulin amount using the delta blood glucose level divided by an

insulin sensitivity factor, and the result of the division being added to the amount of

Serial No.: 10/788,475
Amdt. Dated: September 27, 2007
Reply to Office Action dated June 27,
2007

46058

insulin administered to the patient during the selected period.

29.   (withdrawn) A method as claimed in claim 28, wherein the selected period of time corresponds to a period of time occurring within one day.

30.   (withdrawn) A method as claimed in claim 28, wherein the selected period of time comprises one meal time selected from the group consisting of breakfast, lunch, dinner, or snack.

31.   (withdrawn) A method as claimed in claim 28, further comprising the step of generating an initial estimate of the insulin sensitivity factor using at least one number selected from the range of numbers equal to or between 1500 and 1800, and dividing the at least one number by the daily insulin dose.

32.   (withdrawn) A method as claimed in claim 28, further comprising the steps of:
       determining a plurality of daily carbohydrate to insulin ratios corresponding to respective ones of a plurality of days, the daily carbohydrate to insulin ratios each being based on the correct insulin amount and the value corresponding to the patient's food intake for the selected period from the data set of the corresponding one of the plurality of days; and
       determining a carbohydrate to insulin ratio for the selected period from an average of the daily carbohydrate to insulin ratios.

33.   (withdrawn) A method as claimed in claim 32, wherein the step of determining a carbohydrate to insulin ratio for the selected period comprises the step of calculating a weighted average of the plurality of daily carbohydrate to insulin ratios.

34.   (withdrawn) A method as claimed in claim 28, further comprising the step of determining a plurality of daily carbohydrate to insulin ratios corresponding to respective ones of a plurality of days, the daily carbohydrate to insulin ratios each being based on the correct insulin

amount divided into the value corresponding to the patient's food intake for the selected period
from the data set of the corresponding one of the plurality of days.

35.   (withdrawn) A method as claimed in claim 34, further comprising the step of
determining a carbohydrate to insulin ratio for the selected period from an average of the daily
carbohydrate to insulin ratios.

36.   (withdrawn) A method as claimed in claim 35, further comprising the steps of:
        determining the amount of insulin not needed for carbohydrates consumed on a given
day; and
        determining an estimate of the insulin sensitivity factor for the given day using the delta
blood glucose divided by the amount of insulin not needed for the given day.

37.   (withdrawn) A method as claimed in claim 36, wherein the determining step for
determining the amount of insulin not needed for carbohydrates consumed on a given day
comprises the steps of:
        dividing the value corresponding to the patient's food intake by the carbohydrate to
insulin ratio for the selected period, the value for the patient's food intake being the value for the
selected period obtained from the data set of one of the plurality of days corresponding to the
given day; and
        subtracting the result of the dividing step from the an estimate of the insulin sensitivity
factor for the given day.

38.   (withdrawn) A method as claimed in claim 37, further comprising the step of generating
an initial estimate of the insulin sensitivity factor using at least one number selected from the
range of numbers equal to or between 1500 and 1800, and dividing the at least one number by
the daily insulin dose.

11

39.   (withdrawn) A method as claimed in claim 36, further comprising the step of
determining the insulin sensitivity factor for the selected period from an average of the insulin
sensitivity factor for each of a plurality of days.

40.   (withdrawn) A method as claimed in claim 39, wherein the step of determining an
insulin sensitivity factor for the selected period comprises the step of calculating a weighted
average of the insulin sensitivity factor for each of a plurality of days.

41.   (original) A computer readable medium of instructions to determine factors used for
insulin therapy comprising:

    a first set of instructions to store at least one data set in a memory device, the data set
comprising blood glucose readings for, respectively, substantially the beginning of and
substantially the end of a selected period of time, a value corresponding to the patient's food
intake for the selected period, and the amount of insulin administered to the patient during the
selected period;

    a second set of instructions to calculate a delta blood glucose level corresponding to the
difference between the blood glucose readings taken, respectively, at substantially the beginning
of and substantially the end of the selected period; and

    a third set of instructions to determine a correct insulin amount using the delta blood
glucose level divided by an insulin sensitivity factor, and the result of the division being added
to the amount of insulin administered to the patient during the selected period.

42.   (original) A computer readable medium as claimed in claim 41, wherein the selected
period of time corresponds to a period of time occurring within one day.

43.   (original) A computer readable medium as claimed in claim 41, wherein the selected
period of time comprises one meal time selected from the group consisting of breakfast, lunch,
dinner, or snack.

44.   (original) A computer readable medium as claimed in claim 41, further comprising a fourth set of instructions to generate an initial estimate of the insulin sensitivity factor using at least one number selected from the range of numbers equal to or between 1500 and 1800, and dividing the at least one number by the daily insulin dose.

45.   (original) A computer readable medium as claimed in claim 41, further comprising:

a fourth set of instructions to determine a plurality of daily carbohydrate to insulin ratios corresponding to respective ones of a plurality of days, the daily carbohydrate to insulin ratios each being based on the correct insulin amount and the value corresponding to the patient's food intake for the selected period from the data set of the corresponding one of the plurality of days; and

a fifth set of instructions to determine a carbohydrate to insulin ratio for the selected period from an average of the daily carbohydrate to insulin ratios.

46.   (original) A computer readable medium as claimed in claim 45, wherein said fifth set of instructions comprises instructions to calculate a weighted average of the plurality of daily carbohydrate to insulin ratios.

47.   (original) A computer readable medium as claimed in claim 41, further comprising a fourth set of instructions to determine a plurality of daily carbohydrate to insulin ratios corresponding to respective ones of a plurality of days, the daily carbohydrate to insulin ratios each being based on the correct insulin amount divided into the value corresponding to the patient's food intake for the selected period from the data set of the corresponding one of the plurality of days.

48.   (original) A computer readable medium as claimed in claim 47, further comprising a fifth set of instructions to determine a carbohydrate to insulin ratio for the selected period from an average of the daily carbohydrate to insulin ratios.

49.   (original) A computer readable medium as claimed in claim 48, further comprising:

a sixth set of instructions to determine the amount of insulin not needed for carbohydrates

consumed on a given day; and

a seventh set of instructions to determine an estimate of the insulin sensitivity factor for

the given day using the delta blood glucose divided by the amount of insulin not needed for the

given day.

50.   (original) A computer readable medium as claimed in claim 49, further comprising an

eighth set of instructions to determine the insulin sensitivity factor for the selected period from

an average of the insulin sensitivity factor for each of a plurality of days.

51.   (original) A computer readable medium as claimed in claim 50, wherein the eighth set of

instructions comprises instructions to determine an insulin sensitivity factor for the selected

period by calculating a weighted average of the insulin sensitivity factor for each of a plurality of

days.

52.   (currently amended) An apparatus for determining factors used for insulin therapy

comprising:

a memory device [[for]] storing at least one data set in a memory device, the data set

comprising blood glucose readings for, respectively, substantially the beginning of and

substantially the end of a selected period of time, a value corresponding to the patient's food

intake for the selected period, and the amount of insulin administered to the patient during the

selected period; and

a processing device connected to the memory device and ~~being~~

~~programmable~~programmed to calculate a delta blood glucose level corresponding to the

difference between the blood glucose readings taken, respectively, at substantially the beginning

of and substantially the end of the selected period, and to determine a correct insulin amount

using the delta blood glucose level divided by an insulin sensitivity factor, and the result of the

Serial No.: 10/788,475
Amdt. Dated: September 27, 2007
Reply to Office Action dated June 27,
2007

46058

division being added to the amount of insulin administered to the patient during the selected period.

53.   (original) An apparatus as claimed in claim 52, wherein the selected period of time corresponds to a period of time occurring within one day.

54.   (original) An apparatus as claimed in claim 52, wherein the selected period of time comprises one meal time selected from the group consisting of breakfast, lunch, dinner, or snack.

55.   (currently amended) An apparatus as claimed in claim 52, wherein the processing device is further ~~programmable~~programmed to ~~generating~~generate an initial estimate of the insulin sensitivity factor using at least one number selected from the range of numbers equal to or between 1500 and 1800, and ~~dividing~~divide the at least one number by the daily insulin dose

56.   (currently amended) An apparatus as claimed in claim 52, wherein the processing device is ~~programmable~~programmed to

determine a plurality of daily carbohydrate to insulin ratios corresponding to respective ones of a plurality of days, the daily carbohydrate to insulin ratios each being based on the correct insulin amount and the value corresponding to the patient's food intake for the selected period from the data set of the corresponding one of the plurality of days, and

determine a carbohydrate to insulin ratio for the selected period from an average of the daily carbohydrate to insulin ratios.

57.   (currently amended) An apparatus as claimed in claim 56, wherein the processing device is ~~programmable to wherein the step of determining~~programmed to determine a carbohydrate to insulin ratio for the selected period ~~comprises the step of~~by calculating a weighted average of the plurality of daily carbohydrate to insulin [[ratios]]ratios.

58.   (currently amended) An apparatus as claimed in claim 52, ~~further comprising the step of determining~~wherein the processing device is programmed to determine a plurality of daily carbohydrate to insulin ratios corresponding to respective ones of a plurality of days, the daily carbohydrate to insulin ratios each being based on the correct insulin amount divided into the value corresponding to the patient's food intake for the selected period from the data set of the corresponding one of the plurality of days.

59.   (currently amended) An apparatus as claimed in claim 58, ~~further comprising the step of determining~~wherein the processing device is programmed to determine a carbohydrate to insulin ratio for the selected period from an average of the daily carbohydrate to insulin ratios.

60.   (currently amended) An apparatus as claimed in claim 59, ~~further comprising the steps of~~wherein the processing device is programmed to:

        ~~determining~~determine the amount of insulin not needed for carbohydrates consumed on a given day; and

        ~~determining~~determine an estimate of the insulin sensitivity factor for the given day using the delta blood glucose divided by the amount of insulin not needed for the given day.

61.   (currently amended) An apparatus as claimed in claim 60, ~~further comprising the step of determining~~wherein the processing device is programmed to determine the insulin sensitivity factor for the selected period from an average of the insulin sensitivity factor for each of a plurality of days.

62.   (currently amended) An apparatus as claimed in claim 61, ~~wherein the step of determining~~wherein the processing device is programmed to determine wherein the step of determining an insulin sensitivity factor for the selected period ~~comprises the step of~~by calculating a weighted average of the insulin sensitivity factor for each of a plurality of days.